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ABSTRACT

School psychology is a very complex field further complicated by current socio-political contexts which mandate the development of a psychology of school psychology, requiring two things as first steps. The first step is a model which outlines the conceptual map of the area, gives direction to investigations in the area, and checks on the generalizability and usefulness of the findings. This 3S model combines systems theory, behavior setting theory, and specifics profiling. Concurrently with the development of the model, new methods need to be employed in the investigation of problems of school psychologists, such as systems analysis, behavior setting surveys, chronologs, and specifics profiling. Problem solving techniques can synthesize the models and methods into a practical working strategy. (Author)

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Ecological Models and Methods in the Study of School Psychology

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Ecological Models and Methods in the Study of School Psychology

Introduction

School psychology is a very complex field. Bardon (1976) makes a case for the fact that this is simply the nature of the beast as he describes school psychologists functioning between an ever-changing set of problems being referred to them on the one hand, and an equally ever-changing knowledge base from which to draw solutions on the other. When these factors are taken together with the number and array of socio-political influencers which are part of the context of the practice of school psychology today, such as testing constraints, rights to privacy and access to records, due process assurances, etc., the case seems well made (Bersoff, 1973; Kirp & Kirp, 1976; Trachtman, 1972). A need has emerged to develop a psychology of school psychology (Ellingson, Note 1).

Two things seem to be needed in order to permit the development of this psychology of school psychology. One of these is a model to outline the conceptual map of the area, to give direction to investigations in the area, and to check on the generalizability and usefullness of the findings. A 3S model will be proposed to serve that function. Concurrently with the development of the model, new methods need to be employed in the investigation of the problems of the school psychologists. A number of naturalistic strategies are available from other subspecialities in psychology and from other fields which can yield useful data about the practice of school psychology.

Ecological Models

In order for a model to be maximally useful for school psychologists it needs to be sufficiently comprehensive to permit analysis of a variety of child problems and, at the same time, sufficiently specific to address the interior of any given child's individual problem. Hopefully, it should also generate effective action patterns for the solution of such problems. A 3S model is proposed which includes systems theory, behavior setting theory and specifics profiling. The purpose of this model is to synthesize and integrate models and model components which exist elsewhere in school psychology and in the behavioral and physical sciences which have been shown to be useful and practical.

Systems

Systems theory provides the overarching framework for contextual analyses in the 3S model. Von Bertalanffy (1950, 1968) laid the foundations for a general systems theory. Boulding (1968) and Buckley (1968) helped to translate this theory for the behavioral sciences. More recently Urban (1978) has used systems theory to describe human development. Barbrack (Note 2) and Eklund (Note 3) have provided some excellent translations of systems theory for school psychology. Arends & Arends (1977), Gallessich (1972), Gilmore (1974), Minor (1972), and Reilly (1974) have also spoken to this point.

Hobbs (1966) describes a systems model for working with children and identifies the components as (a) the child, (b) his or her family, (c) the school, (d) the neighborhood and community and (e) others

which vary in individual cases, such as a social agency, a physician, a clergyman, etc. Rhodes (1967) uses a systems model to describe the environment of an emotionally disturbed child and introduces the notion of violation of cultural tenets rather than a "sick child" model. Smith (1967) includes similar cultural contexts in his description of the microethnography of a classroom. Gordon (1978), Brim (1975), and Bronfenbrenner (1977) use metatheoretical language to describe microsystems, mesosystems, macrosystems, and exosystems. These might also be thought of as a series of ecowaves surrounding the child with each successive ecowave representing a more general level of influence. The first ecowave, for example, would include the parents and immediate family and perhaps, in the case of a very sick child, the doctor and hospital staff. The second ecowave would include relatives, close friends, and familiar neighborhood persons; the third ecowave perhaps a diagnostic clinic in a nearby city, and so on, each ecowave being determined by the specific ecological network of the individual child. Until a school psychologist has at least a general knowledge of this ecological network and some understanding of how it works, problem identification and solution or prevention may be more illusive than it need be. The variety of systems theories and their applications described above provide some excellent tools for gaining this understanding.

Specifics

A second component of the 3S model is an analysis of specific areas of functioning or what might be called specifics profiling.

Such analysis of specifics has too often been the only strategy employed by school psychologists. Without such analyses, however, a great bulk of the data and findings of modern psychology would be ignored. Specifics profiling can include either an analysis of environmental influences or behavioral effects or both. At this level environment and behavior tend to have been studied separately rather than together as they are in both systems theory discussed above and behavior setting theory discussed below.

Environmental influences have tended to have been seen as emanating from either the physical or the psychosocial environment. For example, data concerning the physical environment show that air conditioning in schools increases language skills but apparently not numerical ones (Rholes, 1967), barometric pressure affects activity level (Sprott, 1967), and that windowless schools do not produce claustrophobia as had been thought (Frye & Stanhardt, 1961).

Psychosocial or cultural influences in the environment determine how an individual perceives space (Sonnenfeld, 1966; Roos, 1968), responds to right-angled buildings (Berry, 1968), and experiences crowding (Calhoun, 1970). Different cultures appear to have very specific spatial zones in which they operate optimally (Hall, 1966) and the behavior of small groups can be predicted quite successfully on the basis of an analysis of their social ecology (Sommer, 1967). School psychologists have traditionally not taken much account of such variables except perhaps as contextual background.

The behavioral effects subject to the above physical and psycho-

social environmental influences have included a variety of child performances such as verbal performance, visual motor performance, social ability, coping and adaptation, and problem solving of various kinds. Measurement of such behavioral effects or performances constitutes the bulk of what many school psychologists do and no explication of these efforts will be attempted here. The majority of educational and/or treatment plans appear to be based on data of this type.

An example of a model which appears to combine several aspects of specifics profiling is Bersoff's (1971; Bersoff & Grieger, 1971) psychosituational assessment. Barden, Bennett, Breechez & Sanderson (1976) have also translated this model into psychosituational classroom intervention.

Settings

One of the common criticisms of systems theory has been that it is too general to generate a specific action plan. On the other hand, psychological constructs and knowledge which will generate specific actions may fail because they have not accounted for wider contextual constraints. What has been missing has been an intermediate level construct which explains how these two disparate level of events actually function in real life. Roger Barker (1968) has discovered an environment-behavior linking phenomenon called a behavior setting which appears to meet this criterion. A behavior setting is a specific set of physical or object props which has attached to it a specific standing pattern of behavior. Both the props and the attached standing pattern of behavior must be present before a behavior setting

can be said to exist. Once they come into being, however, behavior settings have specific identifiable properties and act in specific identifiable ways to direct, urge, and even coerce the behavior of their inhabitants. For example, any given group of 200 people during behavior setting Sunday Morning Worship Service recognize these setting constraints and behave in ways similar to each other. Yet when this same group of people, presumably with different personalities, needs, intellects, etc., is transported to behavior setting Friday Night Basketball Game, they again immediately and without thinking about it recognize the setting constraints and behave in ways similar to each other, but very different from themselves in the previous setting. The cummulative data concerning these setting effects are now very convincing (Barker, 1968; Barker & Wright, 1955/1871; Gump, 1964; Wicker, 1979).

Children become inhabitants in an increasing number of the behavior settings of a community as they increase in age (Barker & Wright, 1955/1971), e.g., church service, McMinn's Drug Store, courtroom, Old Settler's Reunion, etc. They are also the predominant inhabitants of certain other settings, e.g., school, day care center, etc. Behavior settings with their interdependent physical and behavioral properties act on child behavior in exactly the same ways as they do adult behavior. In fact, a measure of increasing developmental maturity or increasing environmental competence is the degree to which children recognize and comply with these behavior setting constraints. Analysis of the child's behavior across a variety of

of behavior settings may then assume diagnostic significance for the school psychologist.

Three characteristics of behavior settings appear to make them especially useful in the practice and in the study of school psychology. First, behavior settings operate at the molar level, that is, within the normal, everyday perspective of the person as perceived by himself or herself. This molar property appears to be useful in linking the more global thinking of systems theory with the more molecular thinking common to many specific psychological constructs and phenomena.

Second, the definition of a behavior setting encompasses both physical and social components. This property should make behavior setting analysis useful to school psychologists in that it is more comprehensive than traditional techniques.

Third, behavior settings are, by definition, a unit of the environment and, further, they are units of the natural habitat. They were discovered by observing regular everyday people as they went about their routine business with no preconceived notions or categories on the part of the investigator. As a result, data from behavior setting analyses will presumably be more quickly and easily generalized into the person's own natural habitat again in the form of an educational program or treatment plan.

In summary, the 3S model is thought to be useful for both the practice and the study of school psychology. It continues and expands a profiling of specific information on each individual child.

Further, it takes account of larger contextual variables through the use of systems theory. But perhaps most importantly, the 3S model uses behavior setting theory as an intermediate level concept which appears to be useful in tying systems theory and specifics profiling together as well as being potentially more generalizable in the natural habitat.

Methods

Systems Analysis

Systems analysis consists, for the purpose of this discussion, of two basic steps. The first step is the identification of the components of the system surrounding the child under study. In the case of a public school child systems components are likely to be the child, parent(s), siblings, grandparent(s), teacher, school friends, neighborhood club, etc. Any one of the systems models mentioned above could be selected as a framework for a given analysis. It is perhaps most common to use a combination depending on the situation. Specific strategies and techniques for acquiring data to identify the systems components may be obtained from social histories, interviews, and observations.

A second step in a systems analysis is the specification of the dynamic functions of the system, that is, the working interrelationships between the components. The purpose is to determine how each component actually functions vis á vis the others in a day to day manner. It is also important to keep in mind while doing this function analysis that the word dynamic means "in a process of continual

change" so that each component will need to be rechecked periodically to determine its status at that time. One technique which may be very helpful in schematizing the functional analysis of the systems components is a modification of Lewin's life space analysis in which a number of components are seen as operating within a force field with each component having a variously weighted positive or negative valence. Baldwin (1967) presents a particularly lucid description of this process. Also as systems theory has begun to be used to solve educational problems in recent years some excellent works have appeared which describe elements of this process, two of which are Bennis, Benne and Chin (1976) and Havelock (1973).

Specifics Profiling

As mentioned above these types of data are the more commonly used ones in school psychology and will not be presented in any great detail here. School psychologists are especially familiar with analysis of the behavioral effects or performances of the child. What is important to keep in mind is that the environmental influencers, both physical and social, are equally important in the final determination of the behavior and should also be profiled. One might start with a simple listing of these influencers and move to a matrix as interrelationships are discovered. Again, the tools for determining elements of this profile are observations, either direct by the psychologist in the various components of the natural habitat, or indirect such as through interviews.

What is probably most important about specifics profiling is the knowledge about psychological phenomena and empirical findings

relating to them which each psychologist possesses. In some sense all of each person's training feeds into this process. In order to update and synthesize one's knowledge, however, Moos (1976) presents an excellent recent review and synthesis of what is known about the major influences of the environment upon behavior. Both physical and psychosocial components are considered.

Behavior Setting Survey

One new tool with which school psychologists may not be familiar is the behavior setting survey. The purpose of this survey is to identify each of these interdependent environment-behavior units or settings within the child's natural habitat. The child's behavior can then be studied as he/she functions within them to determine level of maturity, coping, and adaptation. A behavior setting survey consists of two main steps which have been described in detail by Barker and Wright (1955/1971).

Each cluster of time, place, and object props that appears to have a specific standing pattern of behavior attached to it is identified. Barker (1968) suggests beginning by identifying the physical barriers or perimeters which appear to enclose behavior. Each of these potential behavior settings is then tested structurally (Barker & Wright, 1955/1971) and, if it meets the structural test, it is now called a synomorph.

The second step is to test various synomorphs against each other to determine their degree of interdependence. This is done by use of the K-21 Index (Barker & Wright, 1955/1971). Subscales on the K-21

index include degree of overlappingness of such things as space, time, leadership, population, etc. Each synomorph which receives a K score of 21 or greater is then identified as a bonafide behavior setting and labeled with its common everyday name, e.g., music class, lunch time, recess, Mrs. Jones' third grade class, etc.

Identification of all of the behavior settings of a given habitat leads to the construction of a map for the behavioral environment of that habitat. This map then serves as a standard against which a given child's individual behavior can be compared.

Chronologs

A second new tool with which school psychologists may not be familiar is a naturalistic narrative behavioral record. Narrative records are simply running written accounts of everything the child says and does, and everything that is said and done to him or her. A method now being used at Indiana University to collect such records is called a chronolog (Scott, Note 4). The chronolog is based on an earlier form of observational record called a specimen record developed by Barker and Wright (1955/1971). The specimen record reports all molar level behaviors of the child and all language as much verbatim as possible. It also reports all behaviors and language of other persons in the child's environment. The specimen record is taken with the aid of a Stenomask (Schoggen, 1964), which is a sound-shielded microphone attached to a portable tape recorder. Only directly observable behaviors are reported in everyday language and neither psychological terms nor jargon are used. Systematic periods of orientation and

and adaptation preceed any actual data taking.

The chronolog is very similar to the specimen record and also reports only directly observable behavior in everyday language. The major difference is in the level of detail recorded. The chronolog also records behavior at the molar level but at a somewhat larger molar level, called the maxi-molar level by Diepold (1978). The chronolog summarizes the major ongoing behaviors as they occur and also summarizes the language. This process results in a behavioral record very similar to the specimen record but with considerable savings of time and effort. A specimen record requires approximately 88 hours of team time to produce four hours of observational record whereas the chronolog requires 10-12 hours for the same amount of record. Further time is saved in data production and analysis inasmuch as a four hour specimen record produces approximately 240 pages of data whereas a chronolog produces approximately 40 pages of data (Scott, Note 4). Preliminary studies suggest that while some behavioral and contextual richness is lost in moving to the larger molar level of observing, in fact, very little information is lost in terms of identifying the individual's own naturally occurring behavioral units (Scott & Eklund, Note 5).

Once the chronologs have been collected they may then be analyzed according to whatever scheme is of interest for a given child. Further, they may be reanalyzed many times using different schema which is not the case with preconceived category systems or codes. The major structural units of behavior are called Activity Units (AUs) (Scott, Note 4)

and may occur in a variety of patterns either singly or in various overlapping combinations. Analysis into Problem Solving Events (PSEs) permits the study of the types of problems which the child encountered during the day and the types of solution strategies selected as well as the outcomes (Scott, Note 6). Analysis of Environmental Force Units (EFUs) permits the identification and delineation of the agents in the environment who act on the child and the child's response to them (Schoggen, 1963). The variety of analysis schema which might be conducted on chronolog data is considerable since no preconceived interpretive system was coded into the data during its collection but rather simply directly observable behavior recorded.

Problem Solving

What this paper has tried to do in its discussion of methods is present a series of techniques, some familiar and some new, which may be used in the practice of and the study of school psychology. Some of the methods, e.g., narrative records, have been used both by psychologists in their study of individual children (Barker & Wright, 1955/1971) and by researchers studying what school psychologists do (Diepold, 1978).

The purpose of the section on ecological models was to present a series of conceptual frameworks and one synthesized one, the 3S model, which can then be used to understand and interpret the data generated by use of the techniques as well as lead to some action plan. One final technique must now be mentioned which is not new to school psychologists but which is necessary in order to glue all of

these techniques and models together into a practical working strategy. This technique is problem solving. In itself a systems-like strategy, the problem solving strategy, if used creatively, can provide both direction to the study and an anchorpoint for evaluation of the outcome.

The first step in the problem solving strategy is the stating (and perhaps restating from time to time) of the goal or objective. This working statement of the expected outcome can then (a) aid the psychologist in the selection of the most appropriate model or model components for this particular task, (b) aid in the selection of techniques since certain kinds of data will be more appropriate for cerkinds of goals than others, and (c) provide an anchorpoint for the evaluation of the outcome of the study. This process has been described extensively elsewhere by Havelock (1973) and Kaufman (1971). What is important to note here is that any model or study strategy, ecological or otherwise, may appear to fail, not because the model or study strategy is in error but because creative problem solving was not employed in its implementation.

Summary

School psychology is a very complex field further complicated by current sociopolitical contexts. Such complexity mandates the development of a psychology of school psychology which appears to require two things as first steps. One of these is a model to outline the conceptual map of the area, to give direction to investigations in the area, and to check on the generalizability and usefullness of the findings. A 3S model has been proposed which combines systems theory,

behavior setting theory and specifics profiling. Concurrently with the development of the model, new methods need to be employed in the investigation of the problems of school psychologists. Systems analysis, behavior setting surveys, chronologs and specifics profiling have all been discussed. Problem solving techniques were suggested to synthesize the models and methods into a practical working strategy.

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